

“HIGH SPEED, LOW DRAG: AN EXPEDITED DAMAGE ASSESSMENT AND RESTORATION PROCESS (THE "MINI-312") FOR SEAGRASSES IN THE FLORIDA KEYS NATIONAL MARINE SANCTUARY”

There are approximately 600 known vessel groundings that occur each year within the Florida Keys National Marine Sanctuary (FKNMS). The majority of these groundings directly impact valuable seagrass habitat. Previously, assessment and restoration planning for many of these incidents was difficult to accomplish in a cost-effective manner. With the goal of expediting development of litigation-quality natural resource damage claims for seagrass grounding incidents, NOAA has developed and implemented standardized damage assessment, restoration planning and restoration scaling protocols for seagrass injuries. The protocols center around three major components: 1) GIS-based field assessment, 2) model-based estimation of injury recovery rates, and 3) calculation of compensation using Habitat Equivalency Analysis.

The field assessment techniques have evolved from existing assessment protocols. The seagrass injury field assessment utilizes three quantitative techniques: 1) a surveyor-grade Differential Global Positioning System (DGPS) to map, record location, and physically quantify dimensions of the injury site, 2) a rapid visual assessment technique to estimate the abundance of undisturbed and injured resources, and 3) a detailed bathymetric survey of excavation depths. By combining all three techniques, a geographically and ecologically accurate representation of the extent of injury can be produced very quickly.

Following the field assessment, an accurate estimate of the time it will take to recover to pre-injury conditions is calculated from a spatially explicit recovery model. Previous analyses have demonstrated that the geometry of an injury greatly influences its recovery horizon. Utilizing the geographically accurate data collected from the injury site during the field assessment, a deterministic model is utilized to provide a mathematical formula that is used to directly compute lost interim resource services, which is a key element in NOAA's Habitat Equivalency Analysis (HEA).

In addition to recovery of costs necessary to restore the grounding injuries, the public is also entitled to compensation for the interim resource service losses from the time of injury until the resources recover to baseline. HEA is a methodology used to determine the amount and composition of compensation for resource injuries. The principal concept underlying the method is that the public can be compensated for past losses of habitat resources through habitat replacement projects providing additional resources of the same type and quality.

By standardizing the assessment and restoration planning procedures associated with these types of incidents, NOAA and the State of Florida have substantially lowered the threshold for the size and severity of grounding injuries that can be cost-effectively assessed and restored, significantly increasing the number of cases that can be addressed annually. In addition to the direct resource benefits of increased assessment and restoration, it is anticipated that there will also be a deterrent effect on future groundings.

Initially, all of the assessment and restoration activities conducted under this program have been done within the FKNMS, although the underlying techniques could be applied to any other protected seagrass habitats or other resources (e.g., coral reefs) with similar statutory authority on liability and damages.